

Williams Gateway Existing and Future Conditions

final report

prepared for



Arizona Department of Transportation

prepared by

Cambridge Systematics, Inc.

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1.0 Introduction

This report presents the existing and future conditions for the Williams Gateway Corridor Definition Study (WGCDS). The WGCDS is analyzing the need for a potential corridor connecting Loop 202 (Santan Freeway) in Maricopa County to U.S. 60 in Pinal County. The existing and future conditions analysis provides the basis of data and information that will be used to assess the need for a new Williams Gateway Corridor. All descriptions and data presented in this memorandum are within or directly adjacent to the WGCDS area boundaries.

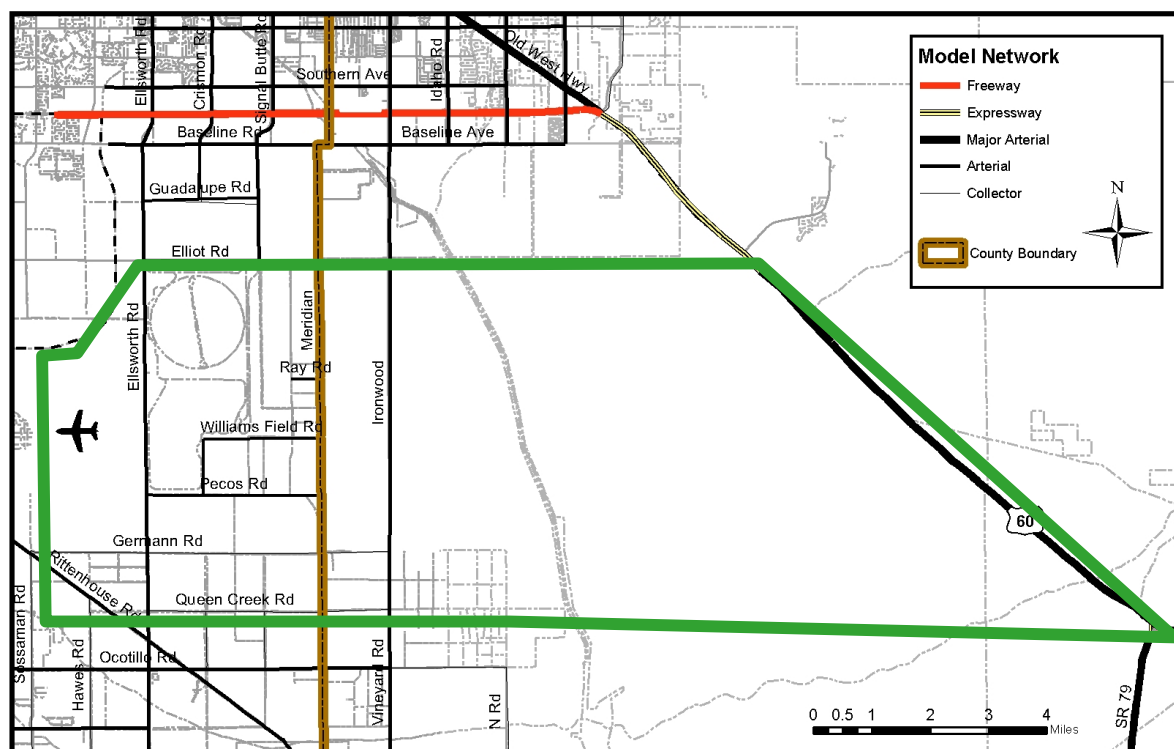
The introduction presents the study area and reviews previous studies that were conducted in this area. Section 2.0 presents transportation system characteristics (numbers of lanes, miles of roadway, etc.); and Section 3.0 presents existing and future population and employment projections. Section 4.0 presents existing transportation conditions, and Section 5.0 presents future transportation conditions.

■ 1.1 Study Area

The study area covers the southeast corner of Maricopa County and the northwest corner of Pinal County. Figure 1.1 shows the study area, defined as:

- Western boundary – Hawes Road Interchange, Loop 202;
- Eastern boundary – U.S. 60;
- Northern boundary – Southern extent of current Apache Junction City limits (Elliot Road); and
- Southern Boundary – Queen Creek Road within the Town of Queen Creek, and junction of U.S. 60 and SR 79 in the southeastern corner of the study area.

The green line in the figure shows the study area. The remainder of this report presents existing (2004) and future (2030) conditions for the map area, which is slightly larger than the study area.

Figure 1.1 Williams Gateway Corridor Definition Study Area

Source: Cambridge Systematics, Inc., 2005.

Each of the maps presented in this report include an area slightly larger than the study area presented above.

■ 1.2 Review of Previous Studies

This section provides summaries of several previous studies conducted in and around the study area. These studies include the Southeast Maricopa/Northern Pinal County Area Transportation Study (SEMNPTS), the Town of Queen Creek General Plan, the City of Apache Junction Small Area Transportation Study, the Mesa Gateway Parkway Alignment Study, the Mesa Transportation Plan; the Mesa General Plan; the Central Arizona College Bond Feasibility Study; the Pinal County Transportation Study; the Pinal County Comprehensive Plan; and the Central Arizona Transmission Systems Study.

Southeast Maricopa/Northern Pinal County Area Transportation Study

Completed in 2003, the SEMNPTS focused on the transportation interactions between Maricopa and Pinal Counties. The study area included southeastern Maricopa County

(primarily portions of Mesa and Queen Creek) and northern Pinal County (primarily Apache Junction, State Lands, the Cities of Florence and Coolidge, and the proposed Community of San Tan). The SEMNPTS, built on previous analyses, assessed the rapid growth of individual communities within the southeastern part of Maricopa County and the northern part of Pinal County, but was the first to focus on area wide growth and the transportation interactions between the Counties. The project was conducted by the Maricopa Association of Governments (MAG), the Central Arizona Association of Governments (CAAG), and Arizona Department of Transportation (ADOT).

The study analyzed existing and future conditions within southeastern Maricopa and northern Pinal Counties, identified and evaluated transportation improvement options, and recommended projects. The study also identified key actions and projects that needed to be implemented to develop a complete transportation system for the southeast study area. These actions and projects were grouped into three tiers or groups. A Williams Gateway freeway was identified in the top tier, along with a bypass of U.S. 60 near Gold Canyon, major arterial improvements, widening of existing freeways, and development of a land use plan for State Trust Lands.

Town of Queen Creek General Plan

Prepared in 2002, Queen Creek's General Plan was created to guide development in the Town of Queen Creek. The plan is an update of the adopted plan of October 1996 that was amended in May 1999. The plan was updated due to new state requirements and rapid growth occurring all around the Town of Queen Creek. The study area of the plan includes the incorporated city and additional land need to realistically accommodate future growth.

The plan analyzed nine closely related elements, including land use; growth area; transportation/circulation; parks, trails, and open space; environmental planning; water resources; economic development; cost of development; and implementation. It also included an extensive public involvement program that was used to establish a vision and goals for the Town. The land use, growth area, and transportation and circulation elements are especially relevant to the WGCDS. The implementation program resulted from the plan, includes several land use amendments to accommodate future growth.

City of Apache Junction Small Area Transportation Study

Completed in March 2004, the Apache Junction Small Area Transportation Study (SATS) focused on the development of a comprehensive multimodal transportation plan to meet the needs of Apache Junction. Apache Junction and ADOT initiated the study to investigate the transportation impacts of rapid population growth and the influx of winter visitors.

The study included a review of existing and future conditions within Apache Junction, an evaluation of transportation improvement options, and a statement of transportation

vision and goals to accommodate upcoming growth. The Apache Junction SATS identifies significant development that affects the WGCDs, including future roadway improvements to the arterial system in Pinal County and improvements to state highway facilities.

Mesa Gateway Parkway Alignment Study

Completed in August 2004, the Mesa Gateway Parkway Alignment Study assessed the viability of transportation access and parkway alignment alternatives for the Mesa Gateway Development, while maintaining the integrity of the Williams Gateway master plan. The Mesa Gateway development is located at the northwest and southwest corners of Ellsworth Road and the Ray Road alignments in Mesa. The City of Mesa has identified an economic development strategy for this area that includes industrial and commercial office space, hotels, and a golf course. The parkway study was done to provide transportation access to this area and the Williams Gateway airport.

The study evaluated three parkway alignment alternatives to best accommodate the needs of the proposed Williams Gateway Development. The alternatives were evaluated based on several factors, including:

- Parkway roadway geometrics/access considerations;
- Impact on surrounding region;
- Future parkway alignment considerations; and
- Cost effectiveness/feasibility.

Two of the three alternatives evaluated in the study were recommended to address the transportation access needs. The first alternative proposed a full diamond traffic interchange at Ellsworth Road with frontage roads to the Williams Gateway Airport terminal, and the second proposed alternative presents a slight modification of the frontage road system of the first alternative. The Mesa Gateway Parkway Alignment Study also discussed significant growth issues and future developments affecting the WGCDs.

Mesa Transportation Plan

Completed in June 2002, the Mesa Transportation Plan identified the transportation needs of the City of Mesa for the next 25 years and developed an implementation plan. The plan update addressed maintenance of the existing street system and the improvements needed to accommodate rapid population growth. The City identified maintenance as the top priority because, historically, transportation funding has not kept up with the growth of the street system. Little funding will be available to address existing and future congestion.

The plan reviewed existing and future conditions, established a framework to implement a vision for the transportation system, included public participation, and recommended

projects that support multiple forms of transportation, including transit, biking, walking, and auto travel. The Mesa Transportation Plan discusses future projects for a range of transportation options in and around the WGCDS.

Mesa General Plan, 2002

Adopted in June 2002, the Mesa General Plan focused on future community needs and a development plan for the City. The plan update was undertaken to meet the updated state planning requirements and as a result of the City's continued population growth and development opportunities. The study area of the plan includes the incorporated city and land outside the city boundary that is within Mesa's sphere of influence.

The plan analyzed 12 elements required by Arizona statute, including land use; transportation; economic development; growth areas; revitalization and redevelopment; housing; public facilities, buildings, and services; parks, recreation and open space, environmental planning/conservation; water resources; cost of development; and safety. Several of the elements included in this analysis discuss issues affecting the WGCDS, including land use, growth area, and transportation. The transportation element of the plan provides overall policy guidance which is more fully developed and implemented through the Transportation Master Plan. The plan concluded with major amendments to the general plan.

Central Arizona College Bond Feasibility Study

Completed in May 2004, the Bond Feasibility Study assessed the need for future facilities and program offerings for the Central Arizona College, which has campuses in Pinal County. For each of 16 separate study areas within Pinal County and the southern portion of Maricopa County, the study included a current demographic profile, identified the development inventory and forecasts, projected future development and population for five year periods from 2005 to 2025. The analysis included the distribution of population growth within Pinal County and identified future developments that affect the WGCDS.

Pinal County Transportation Plan

Updated in 2000, the Pinal County Transportation Plan identified transportation projects to address future needs and deficiencies in the County. The plan updated the adopted plan of 1994 to address changing conditions due to rapid growth in Pinal County. The plan included a public involvement program, future population estimates, and the evaluation of transportation improvement options. The plan resulted in project recommendations that address transit and street elements in Pinal County.

Pinal County Comprehensive Plan

The Pinal County Comprehensive plan was adopted by the County Board of Supervisors in December 2001. The plan focused on future growth and development within Pinal County to guide decisions by the Planning and Zoning Commission and the Board of Supervisors. Pinal County is currently experiencing rapid growth, and the region is transforming from an agricultural center to a commercial, industrial, and recreational hub. The plan was updated to address the growth challenges facing the county and state requirements to conserve natural resources and ensure the efficient spending of public funds.

The planning process included an extensive public involvement program to incorporate comments, ideas, and directions from the public. The land use and transportation elements discussed growth issues that affect the WGCDS. The plan concluded with several major amendments to accommodate the rapid growth in the region.

Central Arizona Transmission System Study (CATS)

The Salt River Project (SRP) is a major provider of electricity in Arizona. They undertook the Central Arizona Transmission System (CATS) study to identify transmission needs across the State. The first phase of the study, completed in July 2001, focused on overall transmission needs and opportunities in Central Arizona, and provided guidance to participating entities to plan, coordinate, and locate transmission lines and bulk power stations that meet their individual objectives. The study was initiated in response to growth that outstrips the ability of the Phoenix and Tucson transmission system to deliver energy to their respective areas.

The study developed six transmission alternatives designed to address the needs of all participants and identified preferred alternatives. The CATS study overlaps with the WGCDS in the vicinity of the Central Arizona Project (CAP) canal. The preferred alignment for the Pinal West to Southeast Valley/Browning Project (PW-SEV/BRG) transmission lines are along the canal. This alignment is described in more detail below.

Active Studies

In addition to the studies described above, there are several active studies within the study area that address transportation and related issues, including:

- The Superstition Vistas Growth Area Study is being conducted by the Morrison Institute for Public Policy of Arizona State University. This study is examining the potential disposition of more than 300 square miles of State Trust Lands that are expected to be developed over the next several years. The study will examine potential and appropriate land uses, identify and analyze key factors that affect its growth, and put this growth into a regional context. This study is expected to be completed by December 2005.

- The Maricopa Association of Governments (MAG) is conducting a Williams Gateway Freeway Alignment and Environmental Overview study that is focused on the portion of the Williams Gateway corridor that lies within Maricopa County. The MAG Regional Transportation Plan identified funding for this portion of the Williams Gateway corridor to be built as part of the regional freeway system in Maricopa County. The study will identify MAG's preferred alignment within Maricopa County, and is expected to be completed by December 2005.
- ADOT is also conducting two other corridor definition studies that examine the need for three new corridors in Pinal County. These corridors are intended to address needs along U.S. 60 in the vicinity of Gold Canyon, a north-south route between Apache Junction and Coolidge, and an east-west route between I-10 and the junction of SR 79 and U.S. 60. These studies are being conducted in conjunction with the WGCDs, and detailed information on existing and future conditions is available for each study. These studies will be completed at the same time as the WGCDs by December 2005.
- There are several small area transportation studies underway within Pinal County, including for the City of Maricopa and for the County as whole. Casa Grande will start a small area study in the near future. These studies will examine transportation needs on the local transportation system and the interactions with the state transportation system, demographic changes, and other relevant issues.

2.0 Transportation System Characteristics

This section summarizes the characteristics of the existing and future transportation system in the study area, including the road network and public transit.

■ 2.1 Existing and Future Road Network

The existing and future road network descriptions are based on several sources, including the Southeast Maricopa/Northern Pinal County Area Transportation Study (SEMNPTS); the Maricopa Association of Governments (MAG) Regional Transportation Plan (RTP); the Mesa Transportation Plan; and local plans and studies from the Cities of Apache Junction and Mesa, and the Town of Queen Creek. The network includes a combination of free-ways, expressways, arterial streets, and local roads. Figure 1.1 presents the facility type of roadways in the study area.

Existing Freeway System

There is currently one major freeway close to the study area, U.S. 60, running east-west to the north of the study area. Interchanges at Ellsworth, Crismon, Signal Butte, Ironwood, and Idaho Roads provide arterial access to the study area. As U.S. 60 turns to the south-east near Gold Canyon, it transitions to an expressway facility with several turn bays, but limited cross traffic. ADOT recently completed a portion of the Santan Freeway (Loop 202) between U.S. 60 and Elliot Road. The remaining sections of the Santan Freeway are expected to be completed in 2007.

Existing Arterial Network

The arterial system in the study area is constituted of a grid system with major east-west and north-south arterials at one-mile intervals. There are numerous breaks in the arterial grid system at this time, and most arterials do not currently cross the large area of State Trust Lands in the eastern portion of the study area. The study area also includes several local roads. Currently, there are east-west arterials at Elliot, Ray, Williams Field, and Pecos Roads. Most of these arterials terminate at or before Meridian Road, except for the southern part of the study area, where the roads connect through to Ironwood Road and

beyond. There are currently three key north-south arterials in or adjacent to the study area: Ellsworth, Meridian, and Ironwood Roads. Each of these traverses the entire study area.

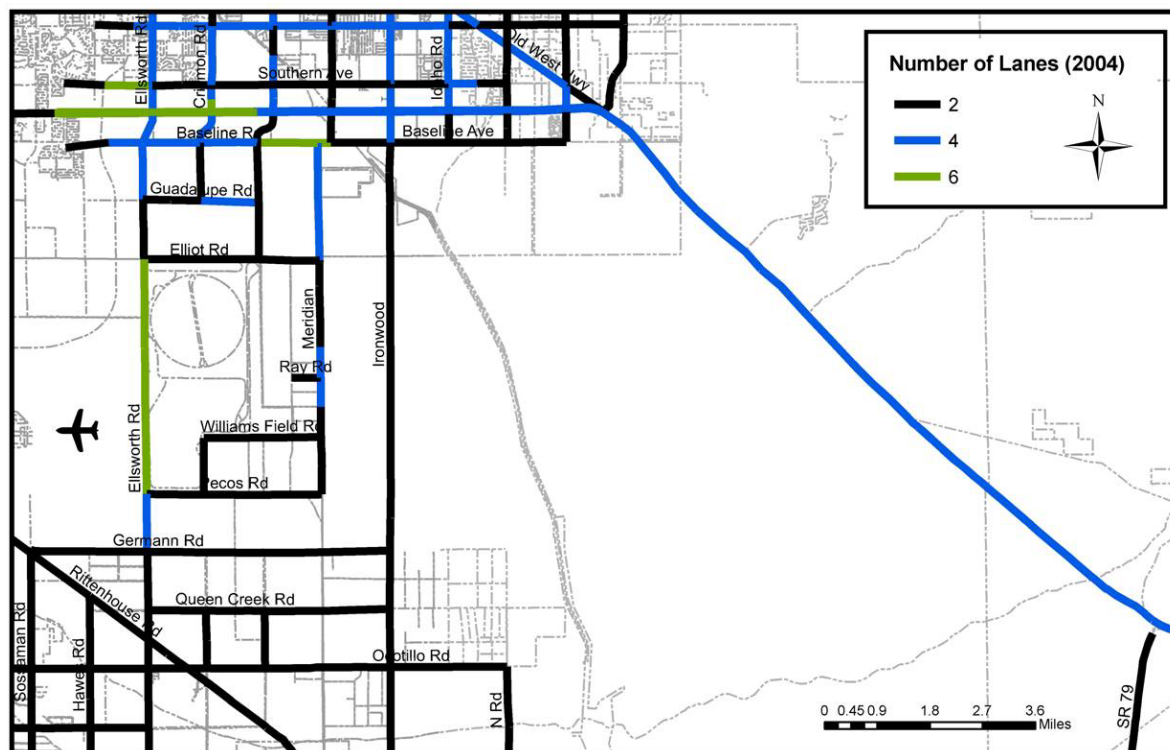
As part of the development of the WGCDS and two other corridor definition studies currently being conducted by ADOT (U.S. 60 and Pinal County Corridors), a model has been developed to estimate future travel demand within the study area. The road network for this model includes all arterials and some collectors, but does not include local roads. The model network consists of 150 centerline miles of roadway (Table 2.1). The majority of the roadways (102 miles) is classified as arterials. Roughly 14 miles of roadway are classified as freeway or expressway. An additional 34 miles are classified as collectors. The vast majority of centerline miles are within the City of Mesa, with smaller portions in Apache Junction, Queen Creek, and unincorporated Pinal County.

Table 2.1 Model Network Centerline Miles by Functional Class, 2004

Functional Classification	Miles
Freeway	10.0
Expressway (U.S. 60)	4.0
Arterial	102.0
Collector	34.0
Total Study Area	150.0

Source: Cambridge Systematics, Inc., 2005.

The number of lanes in the study area varies from two through lanes in both directions to six through lanes in both directions (Figure 2.1). U.S. 60 is a six-lane freeway between the Ellsworth Road and Signal Butte Road interchanges, transitioning to a four-lane expressway to the junction of SR 79. The majority of the arterials in the northern part of the study area consists of four lanes, while the majority of the arterials in the southern part of the study area consists of two lanes.

Figure 2.1 Existing Road Network Number of Lanes in Study Area

Source: Cambridge Systematics, Inc., 2005.

Freeway and Expressway Improvements

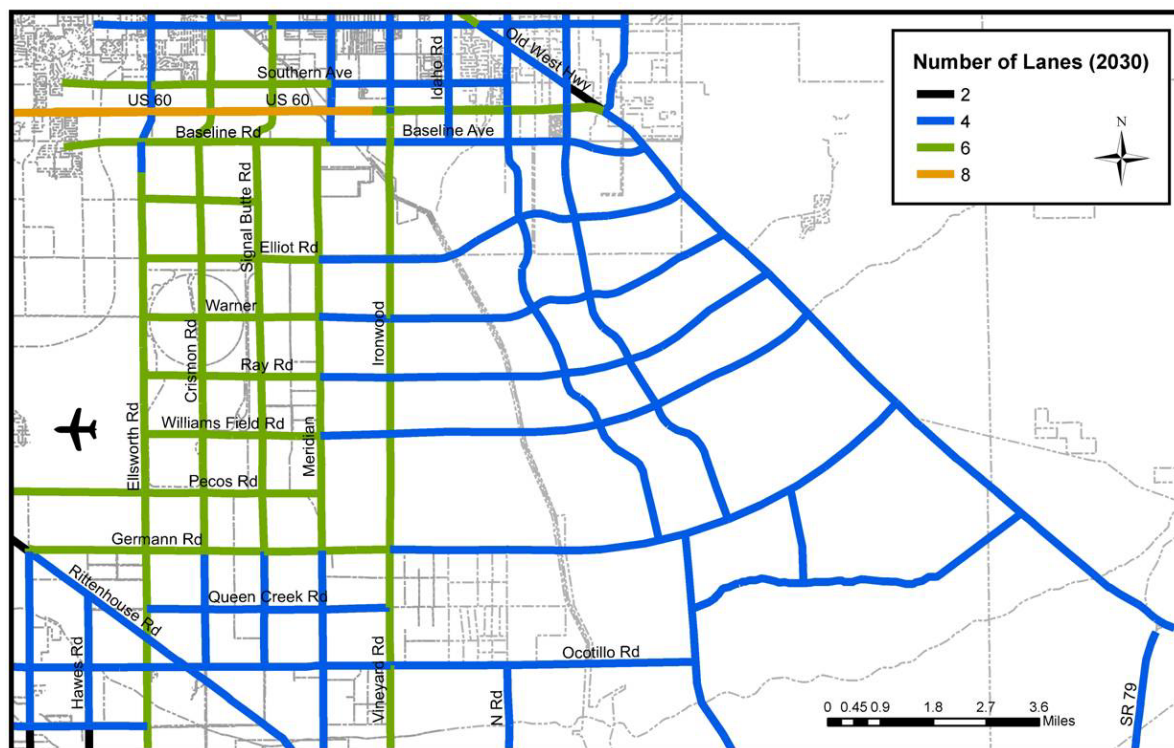
Several freeway upgrades are expected within or adjacent to the study area. On U.S. 60, general purpose lanes are expected to be added between Ellsworth and Meridian Roads. In addition, the high-occupancy vehicle (HOV) lanes will be extended from Ellsworth to Meridian Roads. In the northeastern corner of the study area, the Santan Freeway (Loop 202 south of U.S. 60 to I-10) will be completed in 2006. This facility includes major system interchanges at U.S. 60 and Loop 101 (outside the study area) and several service interchanges within or adjacent to the study area. MAG RTP includes plans to widen the Santan Freeway to four lanes in each direction and to add HOV lanes. The HOV lane improvements will provide a complete HOV system on Loop 202 from I-10 in Phoenix through Tempe, Mesa, Gilbert, and Chandler. Just outside the study area, the Red Mountain Freeway (Loop 202 north of U.S. 60) will be completed in 2007.

Arterial Improvements and New Arterials

Both arterial improvements and new arterials are expected in the study area. The information on arterial improvements is based on the MAG RTP and local plans for the Cities

of Apache Junction and Mesa, and the Town of Queen Creek. New arterials within the study area were identified through these plans and using assumptions about the minimum standards needed to meet the demands of a growing population in northern Pinal County. Figure 2.2 presents the future (2030) transportation network and number of lanes for roads within and adjacent to the study area. For the part of the study area that is within state trust lands, the network identified is preliminary. The actual network that is developed in this area will depend on the result of drainage and other studies being conducted by the Arizona State Lands Department.

Figure 2.2 Planned Future Road Network Number of Lanes



Source: Cambridge Systematics, Inc., 2005.

Major arterial improvements expected in the study area include:

- Upgrading nearly all of the two-lane arterials in 2004 to four-lane arterials by 2030;
- Upgrading nearly all the roads in the study area that lie within the Mesa boundaries from two-lane arterials to six-lane arterials by 2025;¹

¹ Mesa 2025 Transportation Plan, 2002.

- Widening Ironwood Road to six lanes between U.S. 60 and Ocotillo;
- Widening Elliot Road to six lanes from Power Road to Meridian Road;
- Widening Ironwood Road to six lanes between U.S. 60 and Ocotillo;
- Realigning several segments of Rittenhouse Road to improve intersection geometry and separate Rittenhouse Road from the railroad;
- Improving and realigning Ellsworth Road to fix major drainage issues and to avoid the runway protection zone of Williams Gateway Airport; and
- Extending Ray Road around the north end of Williams Gateway Airport.

Ellsworth and Elliot Roads are the two arterial streets in the Williams Gateway Corridor study area that function as regional facilities, because they are multijurisdictional, have good freeway connections, and serve activity centers. These roads are the most likely to include capacity improvements, such as widening and intersection reconstruction. The upgrade of Ellsworth Road is an immediate priority.

In addition, there are also several new arterials expected to be developed by 2030 in the study area. These include two major new north-south arterials in Pinal County just west of the existing U.S. 60, and five extensions of existing arterials through the study area. The majority of new arterials pass through State Trust Lands.

The model network within the study area includes substantial new miles of arterials. Table 2.2 presents the centerline miles by functional class for 2030. The projected number of centerline miles for arterials in the study area has grown to 216. The miles of roadways classified as freeway and expressway are not expected to change significantly from existing conditions. Several of the roads classified as collectors in the current network are expected to be upgraded to arterials. The overall roadway system is expected to grow by 83 centerline miles between 2004 to 2030.

Table 2.2 Model Network Centerline Miles by Functional Class, 2030

Functional Classification	Miles
Freeway	10.0
Expressway (U.S. 60)	4.0
Arterial	216.0
Collector	3.0
Total Study Area	233.0

Source: Cambridge Systematics, Inc., 2005.

Intersection Improvements

Several intersection improvements are planned in the study area. Intersection improvements generally are planned to improve the level of service at intersections where individual arterial streets will not be widened. Their exact locations of the improvements will depend on specific future congestion locations and the priorities of the local jurisdictions.

In January, Queen Creek completed installation of a temporary traffic signal at Ellsworth and Ocotillo Roads. Once funding is identified and upon completion of the final intersection design (including right-of-way acquisition), construction of a permanent signal will begin. By the spring of 2005, additional turning lanes are to be constructed on the eastside of Ellsworth between Ocotillo and Rittenhouse Roads².

Non-Motorized Improvements

According to the 2002 Queen Creek General Plan, a number of on-road bicycle lanes and bike and pedestrian trails are planned in order to develop a comprehensive bicycle and pedestrian network. Within the study area, these improvements are planned on Queen Creek, Ocotillo, Riggs, Ellsworth, and Hawes Roads.

According to the Mesa 2025 Transportation Plan, bicycle lanes will be added to arterials with sufficient width as they are resurfaced; added when roads are widened; and constructed on new arterials in developing areas, particularly in southeast Mesa within the study area.

■ 2.2 Public Transit

The study area currently has limited fixed transit service. Table 2.3 presents the existing transit services in cities located in the study area for 2002. Greyhound provides two inter-city bus routes with service in or adjacent to the study area. One route provides service along U.S. 60 between Phoenix and Globe, with stops in Apache Junction and Florence Junction. A second route provides service between Phoenix and Tucson, with a stop in Chandler. Taxicab companies are located in Apache Junction and Mesa. An express bus service operates on Power Drive, which is directly adjacent to the western border of the study area from U.S. 60 (Superstition Freeway) north to McKellips Road.³

² Queen Creek web site, <http://www.queencreek.org/Streets%20&%20Traffic/>.

³ Mesa 2025 Transportation Plan, 2002.

Table 2.3 Existing Transit Services in Cities Located in the Study Area, 2002

Jurisdiction	Existing Fixed Route Transit Services	Existing Dial-A-Ride or Paratransit Service	Adopted Transit Service Plan
Apache Junction	No	No	No
Mesa	Yes	Yes	Yes
Queen Creek	No	No	No

Source: Southeast Maricopa Northern Pinal County Transportation Study, 2003.

Several transit investments are expected within or adjacent to the study area by 2030. Within the study area, bus service is expected to reach Meridian Road within the next 15 years and express bus service is planned along the Santan Freeway (Loop 2020) by 2017. Bus rapid transit service is planned to serve Williams Gateway Airport along Chandler Boulevard in 2007 and along Williams Field Road in 2023. Additional bus service is planned for the airport along Power Road in 2014. Several other improvements are expected in Mesa adjacent to the study area.

■ 2.3 Other Physical Infrastructure

In addition to the transportation network, there are notable issues with other infrastructure in the study area. This section summarizes issues related to other infrastructure, including the Williams Gateway Airport, canal and flood structures, and power lines.

Williams Gateway Airport

Williams Gateway Airport, located on the western edge of the study area, is expected to have a significant impact on the study area's transportation system in the future. The airport is currently classified as a reliever airport and an aerospace center that accommodates general aviation, air cargo, commercial passenger service, aerospace manufacturing, maintenance, and modification. In 2004, there were over 240,000 operations at Williams Gateway Airport. Operations are expected to grow slowly in the near term to roughly 287,000 annual operations in 2015.

Although the total number of operations is not expected to grow significantly, the types of operations are likely to change. Williams Gateway Airport is in the process of attempting to attract regular commercial air service. The airport currently provides charter service to Laughlin, NV on a fixed schedule. The airport had planned to have regular commercial

service in place by 2003, but the process was slowed by the events of September 11, 2001. The airport has received some interest from major carriers, and has a joint freight marketing agreement with Sky Harbor International. Original estimates suggested that one million passengers would utilize the airport by 2005 and 2.45 million by 2015. These early estimates have yet to be realized. The airport is planning to relocate the passenger terminal to the eastside with access from Loop 202 at the Hawes Road interchange and from Williams Field Road to the east. This will make the airport more accessible to roadway infrastructure (i.e., the future Santan Freeway).

Canal and Flood Storage Structures

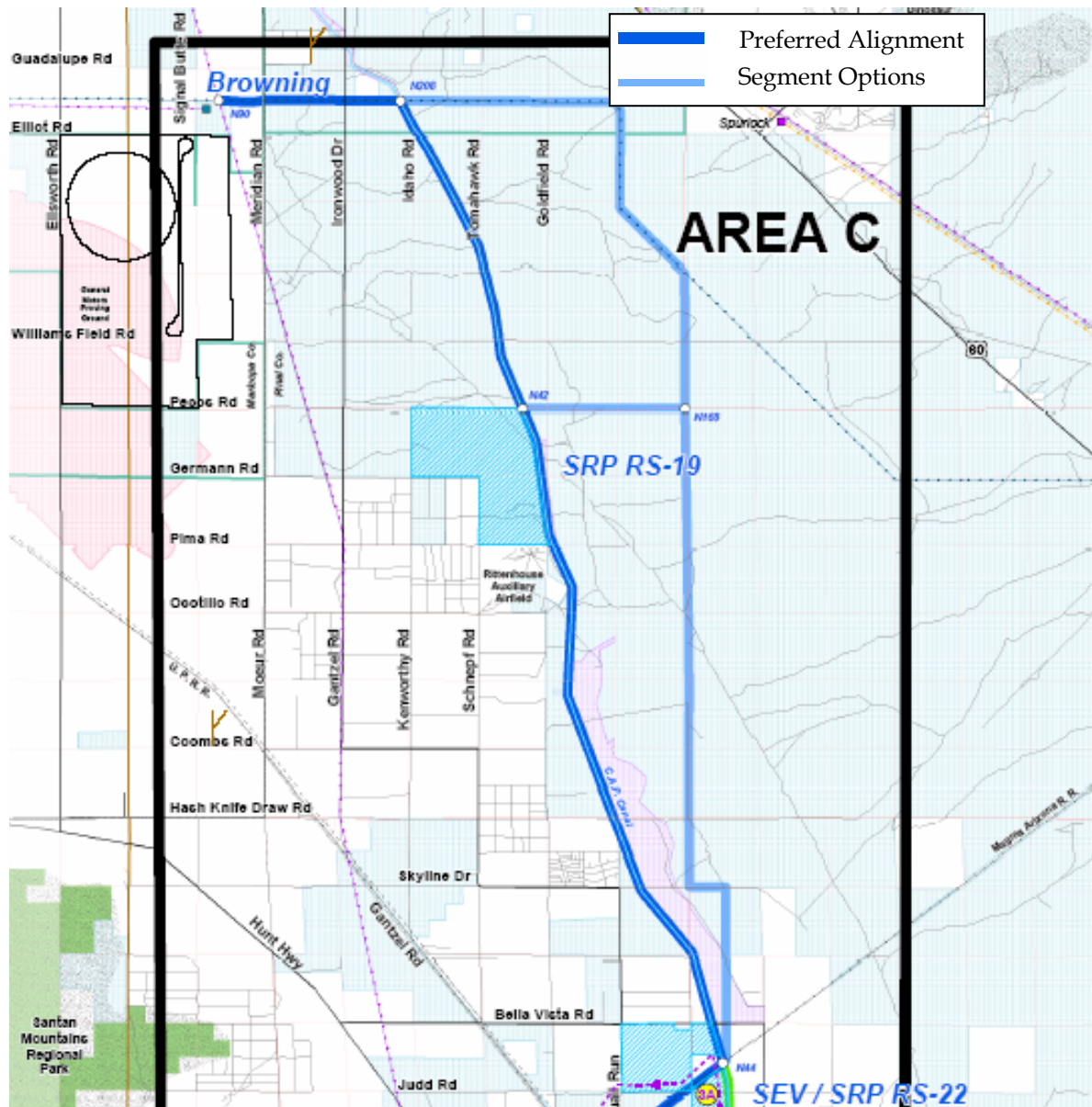
Completed in 1993, the Central Arizona Project (CAP) canal system extends 336 miles from Lake Havasu City to Tucson. The canal cuts across the study area at about Ironwood Road in the north, running in a southeasterly direction through undeveloped State Trust Lands. The canal provides water allocations from the Colorado River to 80 entities in Pima, Pinal, and Maricopa Counties. Its customers are comprised of municipalities and industrial, agricultural, and Indian users. The communities served include Apache Junction, Avondale, Casa Grande, Chandler, Coolidge, Eloy, Florence, Gilbert, Glendale, Goodyear, Green Valley, Marana, Mesa, Oro Valley, Peoria, Phoenix, Pine, Queen Creek, Rio Verde, Scottsdale, Surprise, Tempe, and Tucson.

Directly adjacent to the east of CAP canal, there are three major flood storage structures that were constructed by the Maricopa County Flood Control District (MCFCD). The Powerline, Vineyard, and Rittenhouse flood retarding structures provide flood relief to the CAP canal, Williams Gateway Airport, and other lands in eastern Maricopa County. These structures are large (exceeding 25 feet), presenting potential barriers to an east-west alignment of the Williams Gateway Corridor in Pinal County. There are relatively small gaps between the structures, creating potential complications for an east-west transportation corridor in this area.

Power Lines

The Salt River Project (SRP) provides power to the study area and much of Arizona. A major new power line is currently under development within the study area. The Pinal West to Southeast Valley/Browning Project (PW-SEV/BRG) includes new 500 Kv and 230 Kv transmission lines and substations that will serve the future needs of Pinal and Maricopa Counties. The preferred alignment for a section of the power line runs through the study area. This section starts about 0.5 mile north of Elliot Road, west of the border between Maricopa and Pinal Counties. It runs to the east where it meets the CAP canal, and south along the canal, and then it departs the study area where Queen Creek Road meets the CAP canal. Siting hearings for the power line are currently underway, and the exact route has yet to be selected. The preferred alternative and other options are shown in Figure 2.3.

Figure 2.3 Preferred and Alternate Alignments for Future Power Line



Source: Excerpted from Salt River Project Siting Report.

3.0 Land Use and Socioeconomic Characteristics

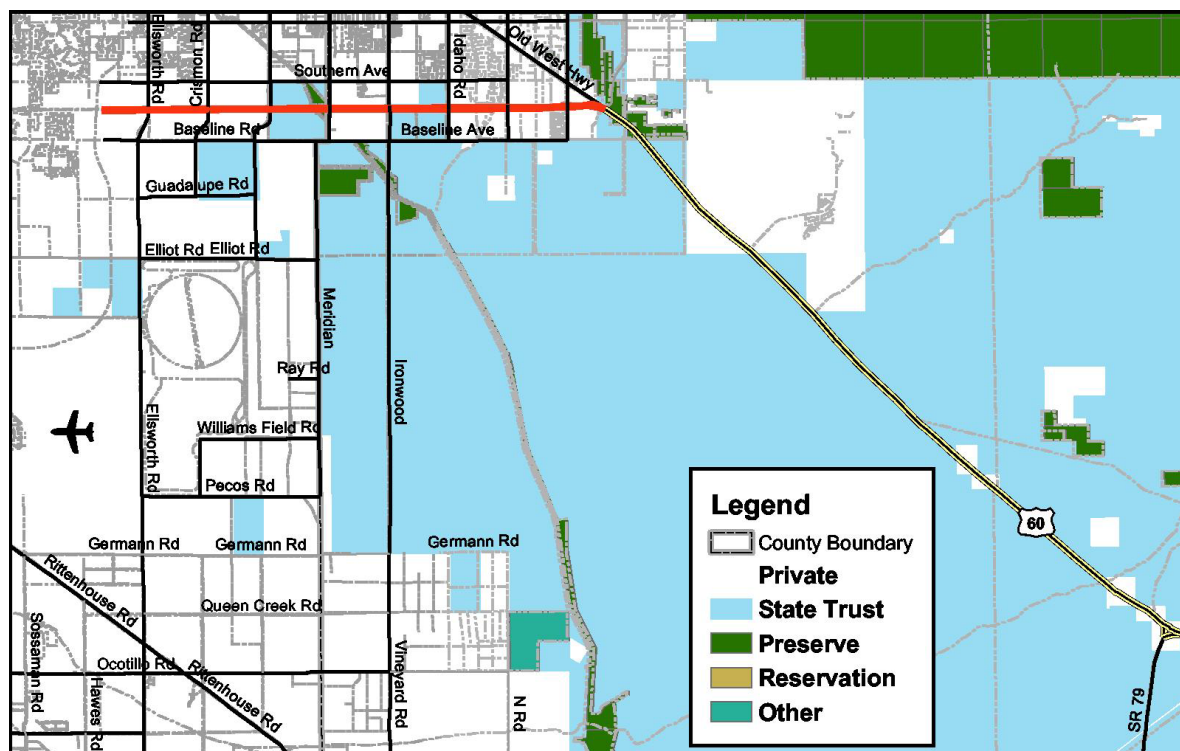
This section summarizes existing and future land use and socioeconomic characteristics in the study area. The socioeconomic characteristics include existing and future population, dwelling units, and employment.

■ 3.1 Existing and Future Land Use

Today, the land use in the study area is primarily residential or undeveloped with several pockets of commercial activity. The land uses in Apache Junction are primarily residential with employment and retail land uses along U.S. 60 and Old West Highway. The land uses in Queen Creek are primarily residential with employment concentrated in an area bounded by Germann and Queen Creek Roads to the north and south, and Ellsworth and Meridian Roads to the west and east. The primary land uses in Mesa within the study area include the Williams Gateway Airport, General Motors (GM) Proving Ground, adjacent industrial lands, and some residential development. To the east of Meridian Road, the study area is largely undeveloped State Trust Lands. Figure 3.1 presents the ownership of land within and adjacent to the study area.

The primary driver of future growth in the Williams Gateway corridor study area will be the demand for suburban housing in the Phoenix metropolitan region. As the eastern part of the Maricopa County builds out, residential, commercial, and industrial growth are expected to shift east and south into Pinal County.

Figure 3.1 Land Ownership, 2004



Source: Cambridge Systematics, Inc., 2005.

State Trust Lands

The Arizona State Lands Department (ASLD) controls the majority of land (over 300 square miles) within the study area. With development pressure increasing, the ASLD intends to release these lands for development. These State Trust Lands have never been developed, even for agricultural purposes. Several ongoing and planned studies will address the disposition of these lands. First, the Morrison Institute, a policy research organization affiliated with the Arizona State University (ASU), is conducting a study to recommend the appropriate development for the State Trust Lands. This study was begun in early 2005, and will be completed by the end of 2005.

To the east of U.S. 60, there are additional State Trust Lands that abut the Superstition Wilderness area of the Tonto National Forest. There has been a major effort to preserve some of these lands as part of a Superstition Area Land Trust (SALT). The SALT area is proposed to include 67,200 acres, 140 of which are currently under private ownership. The SALT groups recommend the declaration of the existing U.S. 60 corridor as a scenic highway to ensure the preservation of the Superstition Wilderness, and enhance lower density residential and small business development.

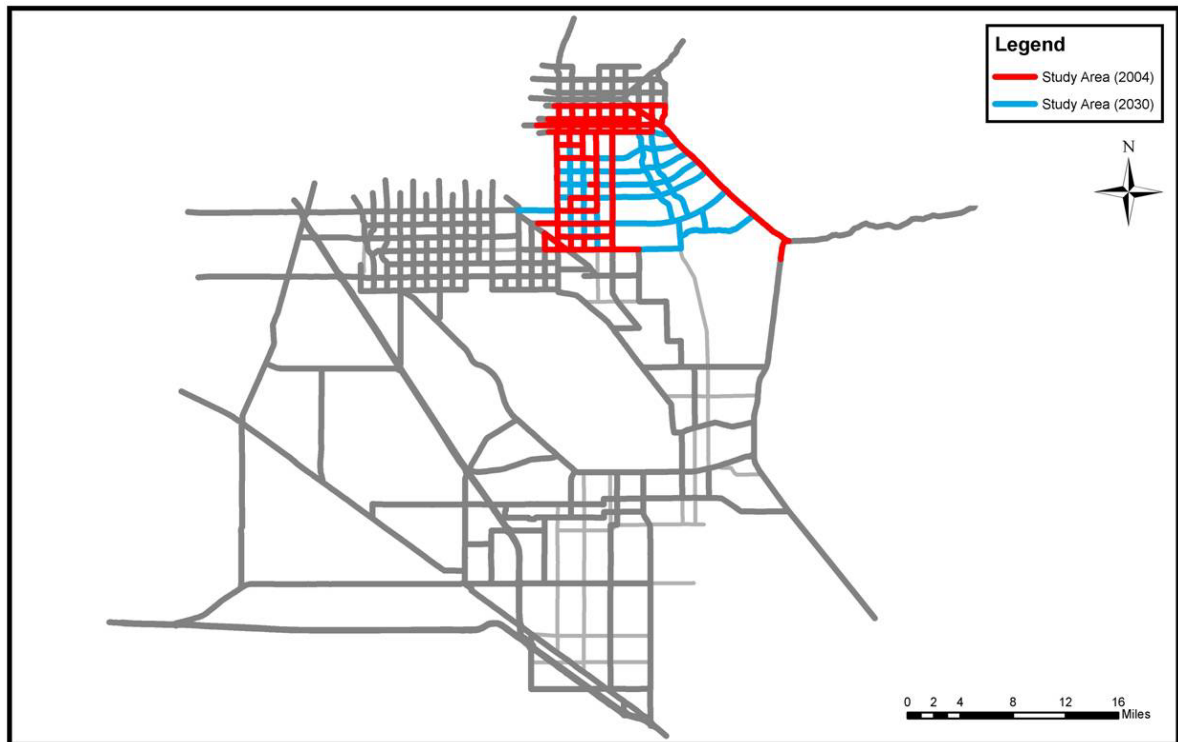
Other Major Land Owners

GM Proving Grounds are located immediately to the east of the Williams Gateway Airport. The facility operates on a 5,000-acre proving ground and research facility for vehicles in hot climates. For several years, GM has been planning to relocate the proving grounds to Mexico, and has recently sold the property to a private developer. The 2004 sale included a lease back of the property to GM for five years, followed by a set of renewable one-year lease options. The City of Mesa intends to develop the GM Proving Grounds area as a major commercial area connected to the Williams Gateway Airport.

Another large industrial use within the Williams Gateway Corridor study area is the TRW property, which is used for vehicle safety systems. TRW has planned to consolidate their operations on about one-quarter of the current property.

■ **3.2 Existing and Future Population**

The population and employment statistics in the WGCDS are based on the Pinal Corridor Planning Model (PCPM). The PCPM socioeconomic data represents a compilation of data from three existing regional modeling systems – MAG, Pinal County, and Apache Junction – and a Bond Feasibility Study (BFS) developed by Applied Economics for the Central Arizona College. In general, the BFS provided overall population projections at a subregional (municipality) level. These projections were used as control totals, and the regional models were utilized to reflect a local understanding of population and employment distributions to specific zones used to estimate trips. The portion of the study area that overlaps with the PCPM is shown in Figure 3.2.

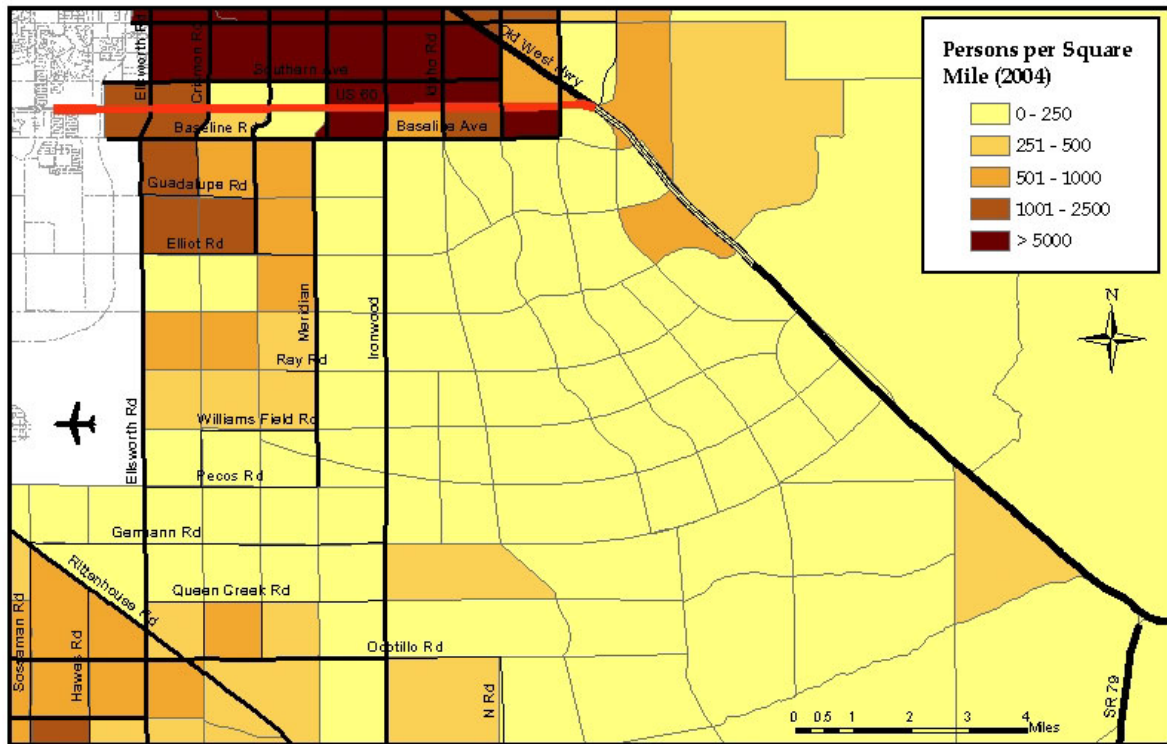
Figure 3.2 Overlap Between Study Area and PCPM Model Network

Source: Cambridge Systematics, Inc., 2005.

Existing Population

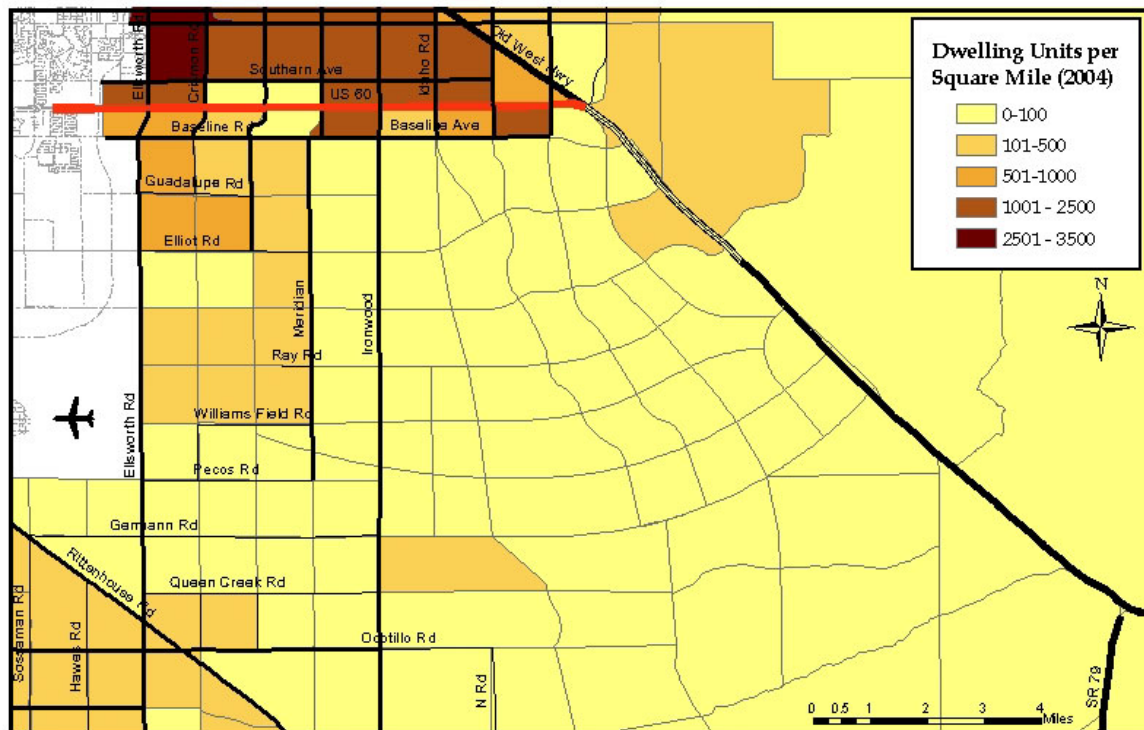
In 2004, just under 67,000 people lived in 29,000 dwelling units within the Williams Gateway study area, with most of these people concentrated within the Cities of Mesa and Apache Junction. Over 200,000 people lived in Pinal County as a whole. Figures 3.3 and 3.4 present the 2004 population density and dwelling unit density of the study area.

Figure 3.3 Population Density, 2004



Source: Cambridge Systematics, Inc., 2005.

Figure 3.4 Dwelling Unit Density, 2004



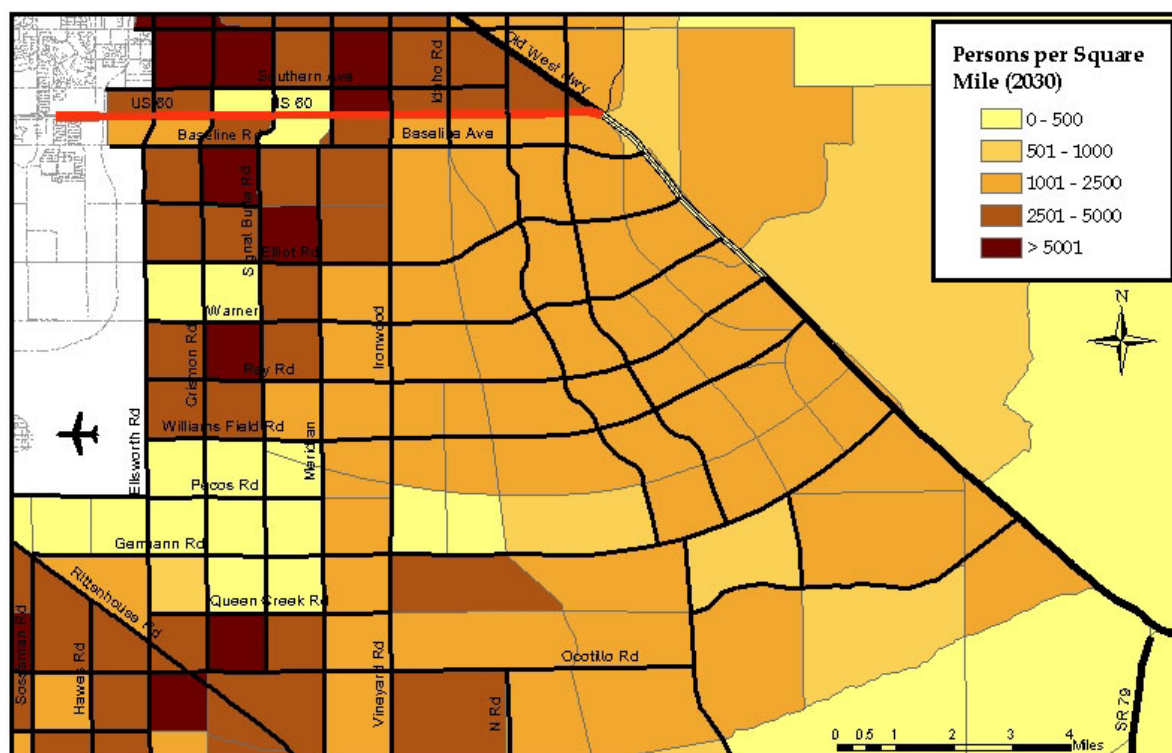
Source: Cambridge Systematics, Inc., 2005.

Future Population

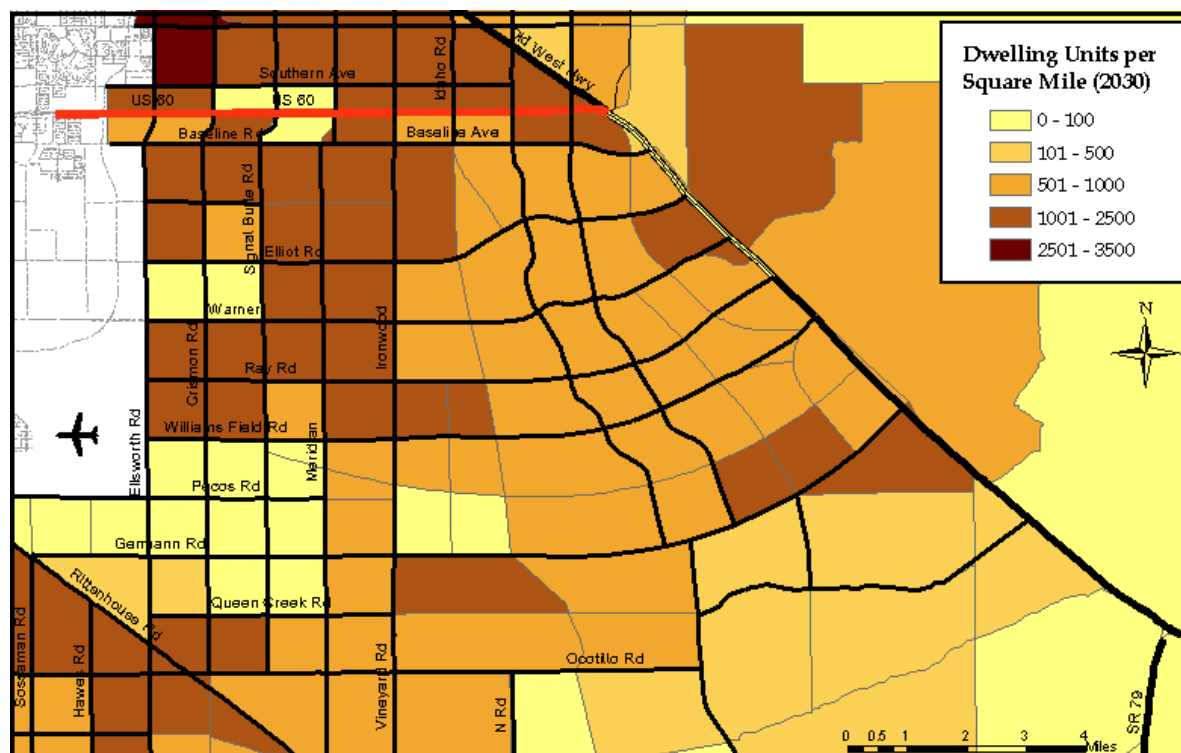
The population of both Pinal and Maricopa Counties is expected to grow rapidly over the next 25 years. Using data generated for the PCPM, the population of Pinal County is expected to grow to over 1 million people by 2030. The Williams Gateway study area is expected to grow to over 295,000 people by 2030, over four times more people that lived in the study area in 2004. This growth reflects the continued development of the existing Cities of Apache Junction, Mesa, and Queen Creek, as well as major new development within the existing State Trust Lands that is expected to occur. Apache Junction grew from 18,000 in 1990 to 34,000 residents in 2000. The City's population doubles in the winter due to an influx of seasonal residents. All three towns are expected to grow rapidly with much of the development occurring within the study area.

In 2030, the highest population densities within the WGCDS continue to be found in the western part of the study area, though the eastern portion of the study area has grown significantly (Figure 3.5). The number of dwelling units is projected to grow in step with the growth in population (Figure 3.6).

Figure 3.5 Population Density, 2030



Source: Cambridge Systematics, Inc., 2005.

Figure 3.6 Dwelling Unit Density, 2030

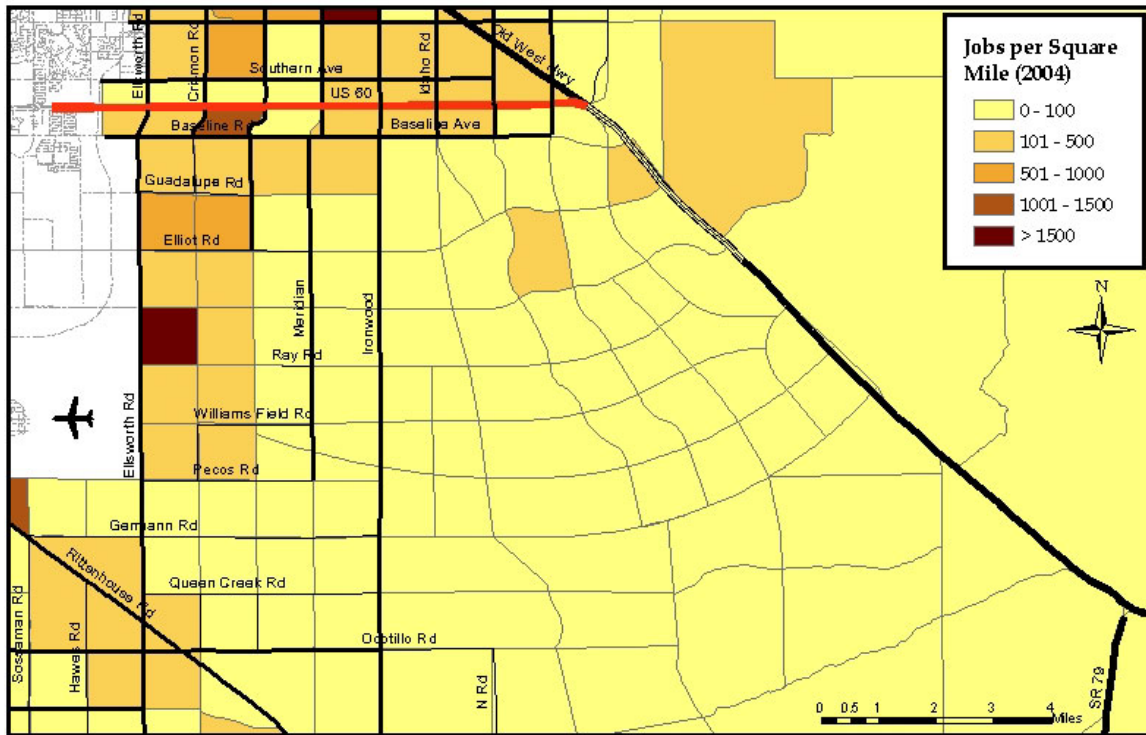
Source: Cambridge Systematics, Inc., 2005.

■ 3.3 Existing and Future Employment

In 2004, the employment within the WGCDS was estimated at just over 14,000 jobs. Figure 3.7 presents the existing employment density for the study area. The majority of these jobs is located within the City of Mesa, with some growth areas in Queen Creek and Apache Junction.

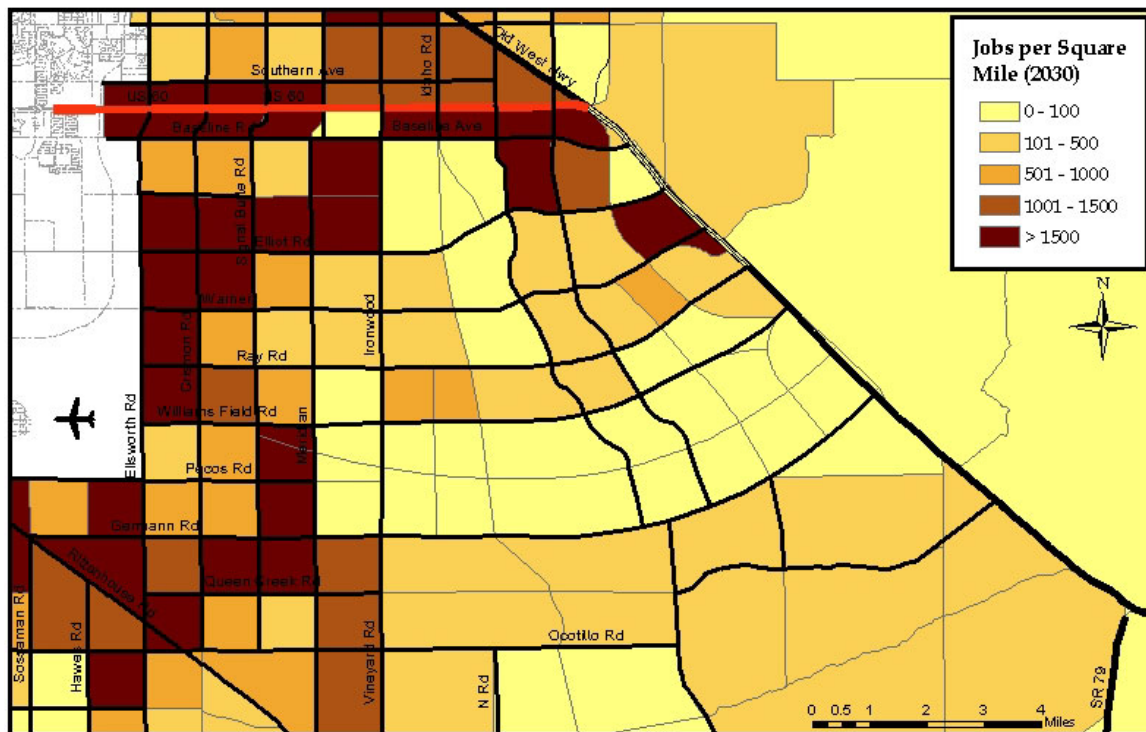
Employment in the City of Mesa and the Town of Queen Creek is growing at a fast pace, even though it is slower than population growth. Employment in the City of Mesa is expected to more than double in 2025. This high growth in employment will have a significant impact on the existing transportation system. Total employment within the study area for 2030 is estimated at over 140,000 jobs, an addition of over 125,000 jobs. The majority of these jobs is located in the City of Mesa, with the largest concentration adjacent to the Williams Gateway Airport property (Figure 3.8).

Figure 3.7 Employment Density, 2004



Source: Cambridge Systematics, Inc., 2005.

Figure 3.8 Employment Density, 2030



Source: Cambridge Systematics, Inc., 2005.

Employment Centers and Special Events

Mesa has identified the Williams Gateway activity center as one of eight major employment centers. This activity center includes the Williams Gateway Airport and the college campuses directly west of Williams Gateway. In addition, the Town of Queen Creek has established a growth area approach that emphasizes the concentration of employment in the northern part of Queen Creek, closest to the Williams Gateway Airport. The airport and supporting businesses currently employ more than 800 people, and have an economic impact of \$115 million each year. The three campuses (ASU East, Chandler-Gilbert Community College, and Mesa Community College) expect major enrollment growth over the next several years. By 2020, up to 20,000 students are expected to be attending one of these campuses.⁴

Directly east of the airport, the GM Proving Grounds location is also expected to be a major generator of employment in the region. As this property is developed, its proximity to transportation (the Williams Gateway Airport and the Santan Freeway) and its size (5,000 acres) present an opportunity to create a major employment area in the City of Mesa.

Another City of Mesa activity center near the study area is the Superstition Freeway Corridor. This activity center currently has the largest share of workers in the City of Mesa with 23 percent of citywide employment.

On the eastside of the study area, the Arizona Renaissance Festival is an annual event held on a 30-acre parcel located on U.S. 60, approximately six miles southeast of the Mountainview Road intersection. Festival events are held every weekend for about two months out of the year. The festival attracted approximately 250,000 visitors in 2004.

⁴ Mesa Office of Economic Development,
<http://www.ci.mesa.az.us/econdev/pdf/profiles/wga.pdf>

4.0 Existing Transportation Conditions

This section of the report presents the current transportation conditions for the study area, including traffic volumes, roadway level of service, crashes, and related information. The material for this section is based on other plans conducted in the study area, data collected by ADOT and other agencies, and the Pinal County Planning Model (PCPM).

■ 4.1 Existing Traffic Volumes

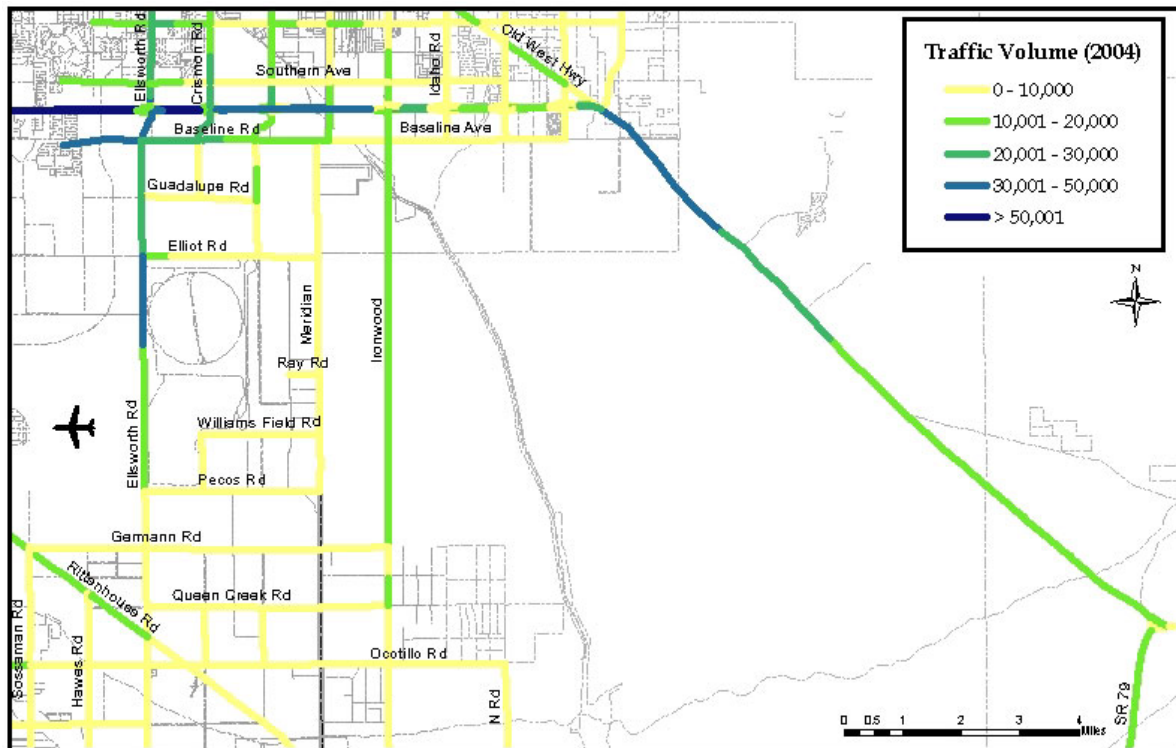
The highest arterial traffic volumes are in the northwestern part of the study area on portions of Ellsworth, Crismon, and Baseline Roads. Average daily traffic volumes on arterials in the southern part of the study area are generally lower than the traffic volumes in the northern part of the study area. Existing traffic volumes at key locations within the study area are listed in Table 4.1.

The estimated 2004 average daily traffic volumes for the roadway network in the study area are presented in Figure 4.1. The highest freeway volumes in the study area are on the western end of U.S. 60.

Table 4.1 Traffic Volumes at Key Locations in Study Area, 2004

Road	Cross Street	Estimated Volume
U.S. 60	Ironwood Road	55,000
U.S. 60	Mountain Brook Drive	28,000
Ironwood Rd	Germann Road	10,000
Ellsworth Rd	Germann Road	8,000
Ocotillo Rd	Ironwood Road	7,000
Germann Rd	Ironwood Road	4,000

Source: Cambridge Systematics, Inc., 2005.

Figure 4.1 Average Daily Traffic Volumes, 2004

Source: Cambridge Systematics, Inc., 2005.

■ 4.2 Existing Level of Service

The level of service (LOS) concept describes the degree of congestion on the roadway, and is a key indicator of the roadway performance. Roadways receive a LOS grade from A to F, with A representing free-flow conditions and F representing complete gridlock. The letter grades are based on a ratio of the number of vehicles using the road to the capacity of the road (the volume-to-capacity (V/C) ratio). In general, ADOT considers LOS D to be acceptable conditions in urban areas and LOS C to be acceptable in rural areas. Numeric and descriptive definitions of the LOS grades are provided in Table 4.2. These grades are consistent with the LOS criteria used by ADOT.

Table 4.2 Roadway Segment LOS for the State of Arizona

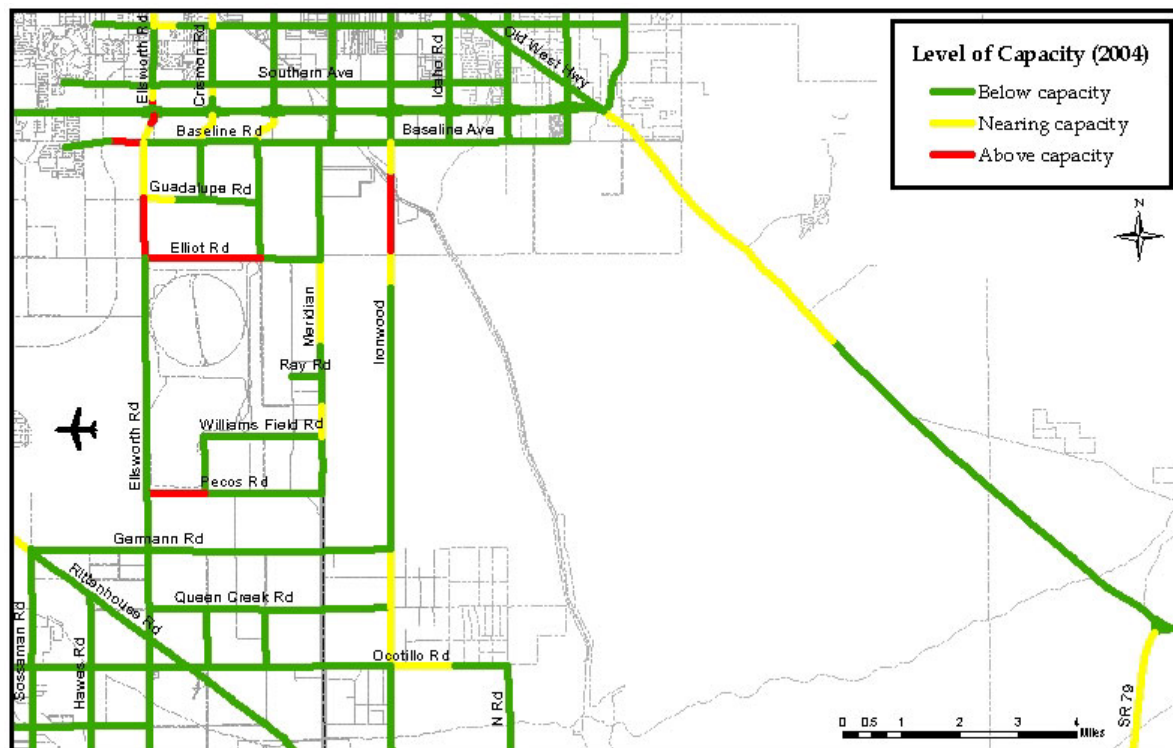
LOS	Description	Range of V/C Ratio
A	Free flow	0.0 to 0.60
B	Stable flow, but noticeable presence of other users in the traffic stream	0.61 to 0.70
C	Near stable flow, but individual user operations are significantly affected by others	0.71 to 0.80
D	High-density stable flow with speed and freedom to maneuver are severely restricted to a low, but relatively uniform value	0.81 to 0.90
E	Operating conditions at or near capacity level with speeds reduced to a low, but relatively uniform value	0.91 to 1.00
F	Forced or breakdown (unstable) flow with traffic exceeding capacity	Greater than 1.00

Source: Arizona Department of Transportation.

Figure 4.2 presents the resulting LOS grades for roadway segments within the study area for 2004. The LOS ratings are grouped into three categories: 1) below capacity (LOS A to C), 2) nearing capacity (LOS D and E), and 3) above capacity (LOS F). Generally, there was enough capacity in the study area under current operation conditions. Only a few arterial segments operate below LOS D within the study area. The freeway portion of U.S. 60 is operating at near free-flow conditions, and the expressway portion (southeast of Mountainview Road) has only several short segments that are approaching capacity.

The LOS on arterials in the study area are acceptable for the majority of the road segments, and traffic flow is stable or at free flow in most cases. Current traffic exceeds capacity at a few locations, including the following:

- Ellsworth Road between Elliot and Guadalupe Roads;
- Elliot Road between Ellsworth and Signal Butte Roads;
- Ironwood Road between Baseline and Elliot Roads; and
- Pecos Road between Ellsworth and Williams Field Roads.

Figure 4.2 Existing Level of Capacity, 2004

Source: Cambridge Systematics, Inc., 2005.

■ 4.3 Existing Crashes

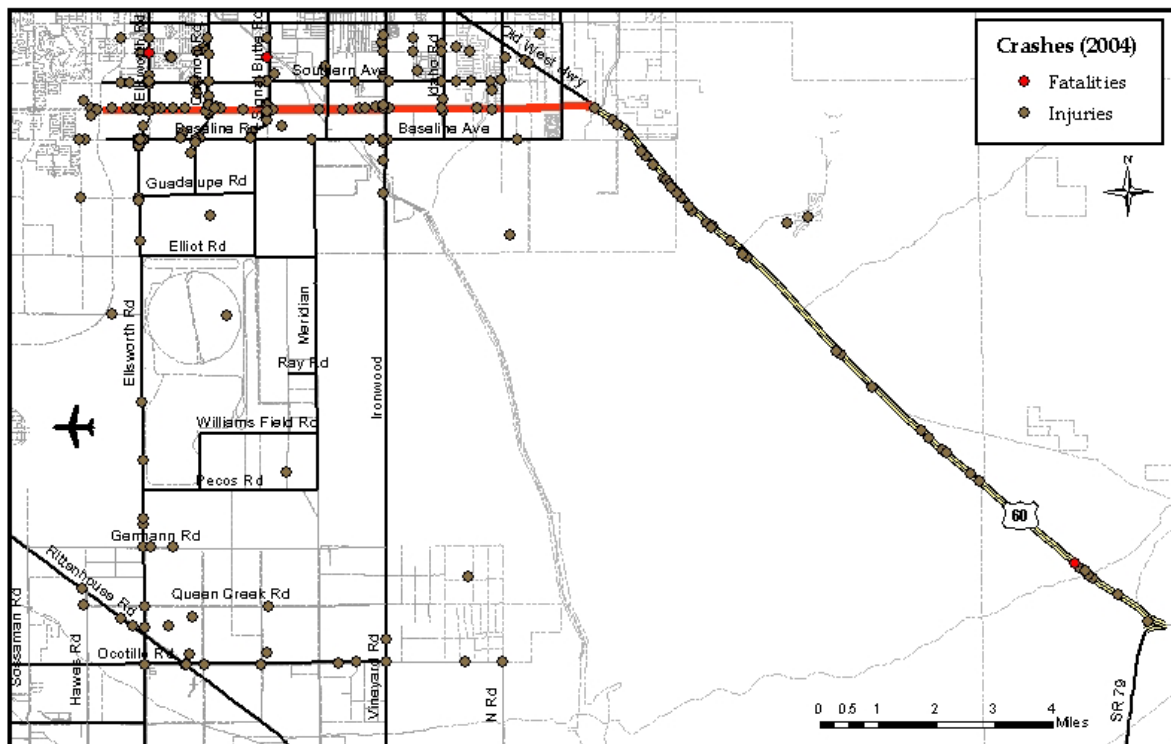
Traffic safety is always an important concern when examining the conditions within the study area. This issue was addressed using motor vehicle crash statistics from ADOT for the years 2002 to 2004. Table 4.3 presents the crash record for all roads in the study area for these three years. Crashes have been increasing steadily in number in the WGCDS from 643 crashes in 2002 to 814 in 2004, a 27 percent increase. As traffic volumes increase, however, crashes are likely to increase as well.

Because much of the study area is currently undeveloped, there are relatively fewer crashes in the WGCDS than in the rest of Arizona. In 2004, there were over 745,000 vehicle miles traveled (VMT) in the WGCDS. The overall crash rate (crashes per 100 million VMT) was 1.09. For the State as a whole, the crash rate has been slightly over 2.0 for the last several years. This rate is notably higher than the U.S. as whole (close to 1.5 per 100 million VMT). Figure 4.3 indicates the locations of crashes that resulted in injuries and fatalities for the year 2004.

Table 4.3 Crash Record for the Roadway System, 2002 to 2004

Year	Fatality	Injury	Property Damage	Total
2002	12	213	423	643
2003	9	222	421	649
2004	3	277	536	814

Source: Arizona DOT, 2005.

Figure 4.3 Fatalities and Injury Crash Locations, 2004

Source: Cambridge Systematics, Inc., 2005.

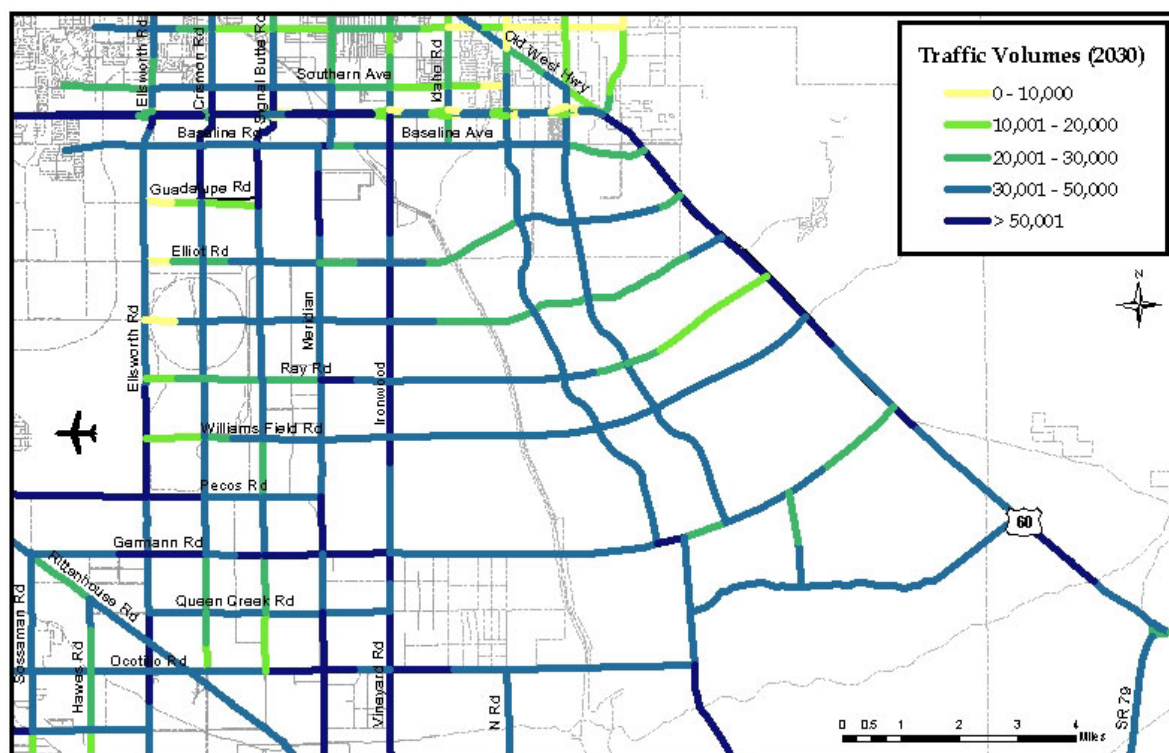
5.0 Future Transportation Conditions

This section of the report presents the future transportation conditions for the study area, including traffic volumes, roadway LOS, and related information. The material for this section is based primarily on the PCPM and the predicted traffic volumes and LOS calculations generated from the model. The future transportation conditions analysis is based on the future roadway network presented in Section 2.0.

■ 5.1 Future Traffic Volumes

The estimated 2030 average daily traffic volumes for the roadway network in the study area are shown in Figure 5.1.

Figure 5.1 Average Daily Traffic Volumes, 2030



Source: Cambridge Systematics, Inc., 2005.

Traffic volumes on the arterial network and the freeway and expressway system are expected to grow substantially between 2004 and 2030. With the development of State Lands and the continued growth of existing communities within the study area, the total volume of traffic will grow by more than five times. The heaviest volumes can be found on the freeway portion of U.S. 60. Several arterials are also expected to experience high traffic volumes, including over 50,000 vehicles per day on segments of Ironwood, Ellsworth, Pecos, and Germann Roads. Future traffic volumes at key locations within the study area are listed in Table 5.1.

Table 5.1 Traffic Volumes at Key Locations in Study Area, 2030

Road	Cross Street	Projected Volume
U.S. 60	Ironwood Road	72,000
U.S. 60	Mountain Brook Drive	65,000
Ironwood Rd	Germann Road	55,000
Ellsworth Rd	Germann Road	41,000
Ocotillo Rd	Ironwood Road	51,000
Germann Rd	Ironwood Road	55,000

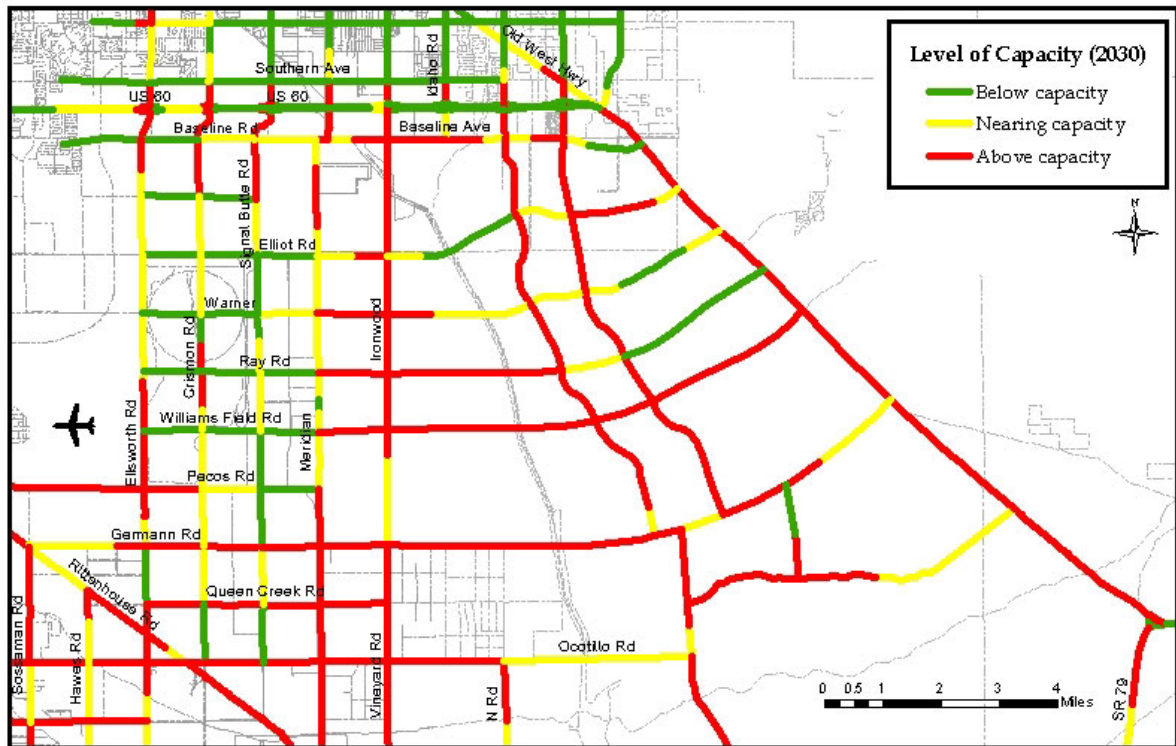
Source: Cambridge Systematics, Inc., 2005.

■ 5.2 Future Level of Service

Figure 5.2 presents the LOS on the roadway segments within the study area for 2030. Rapid population and economic growth in the study area will produce significant congestion on both freeways and arterials by 2030. Segments of the freeway portion of U.S. 60 are expected to be approaching their capacity limits for 2030. The expressway portion of U.S. 60 (between Mountainview Road and SR 79) will exceed its capacity.

Most of the east-west arterials in the study area will approach or exceed capacity in their future configuration. Several of the north-south arterials, such as Ironwood, will also be operating near or above capacity. For the purposes of modeling, most of these arterials are four lanes, though Ironwood is six. As the area grows, however, many of these arterials will be widened to six lanes to accommodate expected traffic growth.

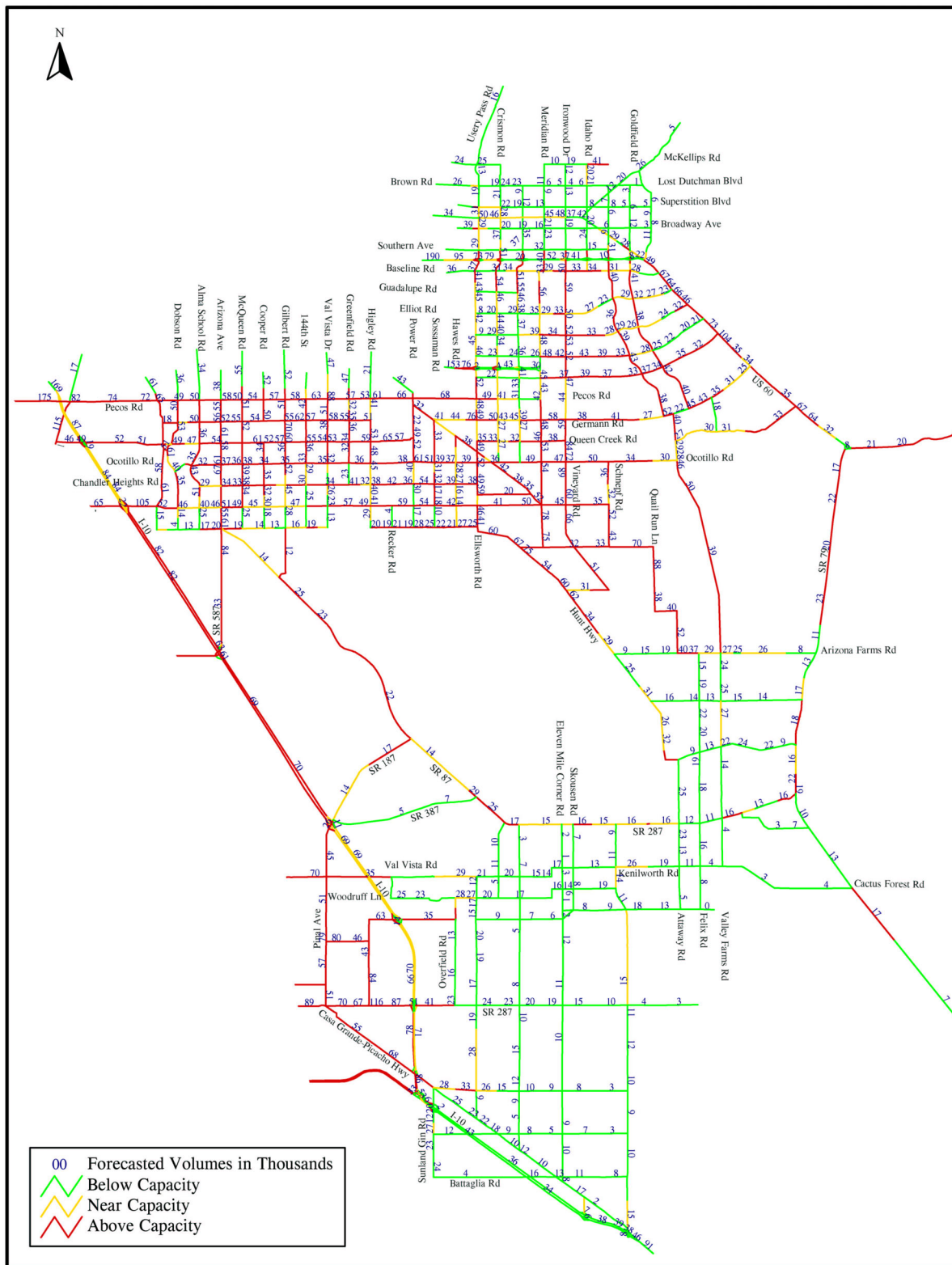
In the western part of the study area, many of the arterials have capacity available. This partly reflects an expected future investment in a Williams Gateway freeway within Maricopa County (funded as part of the MAG RTP).

Figure 5.2 Level of Service, 2030

Source: Cambridge Systematics, Inc., 2005.

Figure 5.3 provides a regional look at projected volumes and capacity levels in 2030. This figure presents this information for the entire model network, impacting all three ADOT corridor definition studies currently underway. The network represented in this figure includes the MAG RTP network in Maricopa County and planned improvements to the roadway system in Pinal County that will support the expected population and employment growth, as described in Section 3.0. Overall, the model shows substantial capacity constraints in the Northern part of Pinal County and along major state routes, especially I-10 and U.S. 60.

Figure 5.3 Pinal County Network Capacity and Traffic Volumes, 2030



Source: Cambridge Systematics, Inc., Lima and Associates, and Kimley-Horn and Associates, 2005.